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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/643,355	08/19/2003	John G. Wasserbauer	JW-1002	3842
36601	7590	06/07/2005	EXAMINER	
INTELLECTUAL PROPERTY ADVISORS LLC			VAN ROY, TOD THOMAS	
PO BOX 156			ART UNIT	
CANTON, CT 06019			PAPER NUMBER	
			2828	

DATE MAILED: 06/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/643,355

Applicant(s)

WASSERBAUER, JOHN G.

Examiner *T. Van Roy*

Tod T. Van Roy

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01/22/2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 06/20/2003 *p/19/2003*
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____

DETAILED ACTION

Drawings

Figures 1-3 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

The disclosure is objected to because of the following informalities:

Page 26 line 7 should read element 100 not 64. Page 41 line 17 refers to element 111a, which is not present in the figure. Page 51 lines 2 and 19 refer to element 218 not found in the figure. Page 53 line 20 refers to element 1022 not found in the figure.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims ^{4 & 15 are} rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 4 does not appear to further limit claim 1 from which it depends. It is unclear as to the relationship between the radial direction of the elements in claim 4, and the Cartesian direction of the elements in claim 1. Further clarification is required.

Claim 15 recites the limitation "active waveguide" in line 2. There is insufficient antecedent basis for this limitation in the claim. The claim from which 15 depends, claim 13, does not specify the type of waveguide, only that a waveguide is present in the lateral direction. The examiner has searched for this claim as if the word "active" were not present, and remaining dependent on claim 13.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-3, 7, 8, and 11-15 are rejected under 35 U.S.C. 102(e) as being anticipated by Abeles (US 6445724).

With respect to claim 1, Abeles discloses a laser device comprising a pair of distributed Bragg reflector mirrors (fig.4 #340,341) surrounding a cavity (fig.4 #342) in a vertical direction (y), a waveguide in the lateral direction (x) (fig.4 #302, col.5-6 lines 66-1), and a distributed feedback grating in a longitudinal direction (z) (fig.4 #352).

With respect to claim 2, Abeles discloses the laser device as outlined in the rejection to claim 1, and further discloses the light being extracted using an optical tap (fig.4 #341, DBR mirror reflectivity having been reduced to allow light to escape as outlined in the disclosure) and an etched facet (col.7 34-44).

With respect to claim 3, Abeles discloses the laser device as outlined in the rejection to claim 1, and further discloses that the lateral confinement is achieved using effective index modulation (fig.4 #302, waveguide is formed using index variation not gain (col.5 lines 66-67) and hence inherently utilizes effective index modulation as the confinement method as outlined in the disclosure).

With respect to claim 7, Abeles discloses a device for optical confinement and feedback comprising a pair of distributed Bragg reflector mirrors (fig.4 #340,341) surrounding a cavity (fig.4 #342) in the vertical (y) direction, a waveguide in the lateral (x) direction (fig.4 #302, col.5-6 lines 66-1), and no optical confinement in the

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longitudinal direction (direction of wave propagation through the guide, so there is no confinement in this direction).

With respect to claim 8, Abeles discloses a device for optical confinement and feedback as outlined in the rejection to claim 7, and further discloses the light being extracted using an optical tap (fig.4 #341, DBR mirror reflectivity having been reduced to allow light to escape as outlined in the disclosure) and an etched facet (col.7 34-44).

With respect to claim 11, Abeles discloses a device for optical confinement and feedback as outlined in the rejection to claim 7, and further discloses that the lateral confinement is achieved using effective index modulation (fig.4 #302, waveguide is formed using index variation not gain (col.5 lines 66-67) and hence inherently utilizes effective index modulation as the confinement method as outlined in the disclosure).

With respect to claim 12, Abeles discloses a device for optical confinement and feedback as outlined in the rejection to claim 7, and further discloses the device to be an amplifier (abs. lines 1-3).

With respect to claim 13, Abeles discloses a photonic integrated circuit comprising a pair of distributed Bragg reflector mirrors (fig.4 #340,341) surrounding a cavity (fig.4 #342) in the vertical (y) direction, a waveguide in the lateral (x) direction (fig.4 #302, col.5-6 lines 66-1), and optical tap means for extracting light from the waveguide (fig.4 #341, DBR mirror reflectivity having been reduced to allow light to escape as outlined in the disclosure) and an etched facet (col.7 34-44).

With respect to claim 14, Abeles discloses a device for optical confinement and feedback as outlined in the rejection to claim 13, and further discloses that component

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devices of the photonic circuit consist of one or more of a passive waveguide (fig.4 #302, col.5-6 lines 66-1).

With respect to claim 15, Abeles discloses a device for optical confinement and feedback as outlined in the rejection to claim 13, and further discloses the component integration to be provided by means outside the plane of the waveguide (fig.4 #351, col.5 lines 44-46, wherein this waveguide is out of the plane of the down-reflecting grating in #303) utilizing reflective elements.

Claims 4 and 6 are rejected under 35 U.S.C. 102(e) as being anticipated by Kinoshita (US 6535537).

With respect to claim 4, Kinoshita discloses a pair of distributed Bragg reflectors (fig.1b #6,4) surrounding a cavity (fig.1b #4) and comprising a distributed feedback grating in the radial direction (fig. 1a #11).

With respect to claim 6, Kinoshita discloses the laser device outlined in claim 4, and further discloses the lateral confinement to be achieved using index modulation (fig.1a #30, waveguide is formed using index variation, not gain, and hence inherently utilizes effective index modulation as the confinement method as outlined in the disclosure).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kinoshita '537.

With respect to claim 5, Kinoshita teaches the laser device outlined in claim 4, including light output from gratings (col.4 lines 20-23). Kinoshita does not specifically teach of the gratings to be formed using etching (col.4 lines 56-58). It would have been obvious to one of ordinary skill in the art at the time of the invention to form the output/feedback gratings using etching as this is a well known and widely used processing technique in the art.

Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abeles in view of Kinoshita (US 6330265).

With respect to claim 9, Abeles teaches the optical confinement and feedback device outlined in the rejection to claim 7, but does not teach the device to be an active waveguide. Kinoshita '265 teaches an optical element with a pair of Bragg reflectors

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wherein the element forms an active waveguide (fig.22 wherein #201 guides the incoming waves, and #203 is an active gain region, constituting an active waveguide). It would have been obvious to one of ordinary skill at the time of the invention to combine the optical confinement and feedback device of Abeles with the active guide of Kinoshita '265 in order to further amplify the light source propagating through the optical element.

With respect to claim 10, Abeles teaches the optical confinement and feedback device outlined in the rejection to claim 7, but does not teach the device to be a combiner, splitter, or mixer. Kinoshita '265 teaches an optical element with a pair of Bragg reflectors wherein the element forms a splitter (fig.22, three input wavelengths enter waveguide #201, and are eventually separated out, amplified, and output). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the optical confinement and feedback device of Abeles with the splitter of Kinoshita '265 in order to better filter out unnecessary frequencies and further refine the output signal to a desired wavelength.

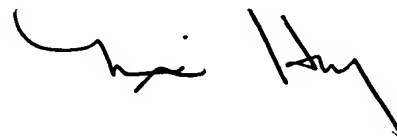
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tod T. Van Roy whose telephone number is (571)272-8447. The examiner can normally be reached on M-F.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Minsun Harvey can be reached on (571)272-1835. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



TVR

MINSUN C.H. HARVEY
PRIMARY EXAMINER